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ABSTRACT

In this study, differential substance use between American and Australian college students was assessed through administration of a survey concerning recent use of six commonly used psychoactive substances (cigarettes, chewing tobacco, alcohol, marijuana, cocaine, and caffeine). Situational contexts associated with the use of each particular substance were also investigated, along with the motivating factors that prompted different types of substance use. Students (N=195) attending college in a suburban area of the Northeastern United States and students (N=27) from an urban university in South Wales, Australia, completed the survey. Overall, few significant differences were found between Americans and Australians on the substance use measures. Americans may make more instrumental use of psychoactive substances as a function of situational context, while Australians make greater use of substances due to specific motivational states. Several differences emerged on the measures of conscious motivation for substance use. Australians acknowledged using alcohol more extensively than Americans to fit in with others and because everyone else was doing it. Limitations of the study are discussed along with suggestions for future research. (Contains 1 table and 22 references.) (JDM)

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Effects of Substance Use Education Programs:

A Cross-Cultural Comparison of Student Use

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Introduction

Cigarette smoking among the college population is distressingly on the rise. Despite the full disclosure of the negative effects of cigarettes, these generally well-informed students still choose to smoke. An increase in smoking of 28% was seen in college students over a period of four years, from 1993 to 1997 (Wechsler, Rigotti, Gledhill-Hoyt, & Lee, 1998).

Although some studies have suggested that tobacco use may be decreasing among younger adolescents, even then researchers have found that almost one-fifth of eighth graders, more than one-fourth of tenth graders, and more than one-third of twelfth graders smoke (Orth & Maurer, 2000). These smokers are finding illicit substances easier to access, at younger ages, and increasingly are using tobacco, alcohol, and marijuana as gateway drugs to harder substances (Orth & Maurer, 2000). Research has demonstrated a connection between tobacco smoking and illicit drug use among drug-dependent persons, such that the more cigarettes smoked, the more likely the person was to use illegal drugs. Research suggests that nicotine and other substances share similar brain pathways and mutually reinforce cravings (Frosch, Shoptaw, Nahom, & Jarvik, 2000).

Education plays a major role in the decision making of adolescents. Some of the perplexing increase in undergraduate smoking may be the result of underfunded antismoking education programs. Cigarettes account for 67% of drug use, yet only 6% of U.S. governmental funding goes towards antismoking programs (Federal Budget, 1998). In the United States, governments currently collect over $14.6 billion in revenue from smokers each year, yet they allot less than $80 million to all preventive health campaigns combined (The Age, 2000). The amount the Federal government has committed to anti-

smoking education up to the year 2002 represents less than 7% of the total revenue the U.S. government is likely to receive from illegal supply of tobacco to children (Action on Smoking and Health, 1998). In Australia, over $4.5 billion is earned in tax revenue from cigarette sales to children, and yet only $1.4 million is spent on anti-smoking education (Tobacco Control, 2000). Unfortunately, governmentally funded education is currently insufficient in many countries. For example, in China a recent survey showed that one out of every two people polled in the country do not know that smoking is a health risk (Chubb, 2000).

On a global basis, the World Health Organization projects that mortality from tobacco use is expected to rise from 3 million deaths per year in 1990 to 10 million a year by 2025. The blame lies largely with the tobacco companies. Clearly, the recent history of tobacco companies' advertising to kids, with such campaigns as Joe Camel, has had an impact. "The tobacco companies claimed they weren't targeting youth, but they also said tobacco wasn't addictive" (Melville, 2000). Powerful TV ads attack these tobacco companies as manipulative and lying. One particularly effective ad used an Academy Award-like setting and had a satanic host hand out the 'demon award' to tobacco as the year's greatest killer of young people (Tucker, 1999).

Different countries have made a wide range of decisions regarding the subtlety with which public health messages convey the perils of smoking. The United States has relied relatively little on explicit fear messages. Comparatively speaking, Australia's antismoking campaign has made exceptionally high use of harsh and graphic negative depictions of health risks in order to steer its population away from this product. One current television ad that is employed in Australia conveys the effect of smoking

cigarettes on the eyes and lungs. After taking a puff, the smoke is seen traveling through the throat and into the blackened lungs. Then viewers are given a look at the bursting blood vessels in the eyes that causes eyesight problems, in order to describe some of the less known effects of smoking. Another popular commercial shows the autopsy of a man who died of smoking related causes, in this case a blood clot in the brain. After the skull is opened and the brain is removed, the clot explodes and blood spreads gruesomely across the table. Targeting 18 to 40 year old smokers, the Australian National Tobacco Campaign has extensively pre-tested the advertisements with groups of smokers from the target audience to ensure that the campaign carries messages that will be meaningful to smokers (Quit Now, 1999). America has yet to make widespread use of this level of graphic detail. Currently, television spots detail the negative health statistics associated with smoking cigarettes, from the annual number of smoking-related deaths to the number of toxins in every cigarette (Truth, 2000).

The problem is that one glamorous Hollywood role model who smokes may neutralize the beneficial message being sent by educational programs. Research with young people in Australia and in America has shown that images of smoking portrayed in popular media influences their attitudes towards smoking and increases their acceptance of smoking as a socially desirable activity (Oxygen, 2000).

Canada has also used this strategic plan in its public health efforts. Taking its war on smoking to a more graphic level, Canada's government recently proposed that cigarette packs carry color photographs of diseased hearts and cancerous lungs and lips. To illustrate a link between cigarette smoking and male impotence, Canadian health authorities chose to display a photograph of a symbolically limp cigarette. Trying to blunt

smoking's sex appeal, the proposal warning read, "Cigarettes may cause sexual impotence due to decreased blood flow to the penis. This can prevent you from having an erection" (Brookes, 2000).

These antismoking slogans have proved successful in some countries, but if America adopted these abrasive and blatantly provocative campaigns, how can one be sure that it would not produce a boomerang effect by eliciting reactance and oppositionism. Currently, lectures on the dangers of smoking are commonly used to try to stop teens from initiating the habit. But new study findings suggest that an active participation program aimed at helping teenagers resist peer and social pressure to try cigarettes may work better than traditional antismoking lectures (Petosa, 1999). The skills-based program aims to increase teens' confidence that they can say no to an offer of a cigarette. When compared with students of the same age and background, the program was credited with having a significant positive impact on the students' ability to say no to a subsequent actual offer to smoke (Petosa, 1999).

If anything else posed a threat to life of this magnitude, whether human induced or naturally occurring, be it world war, genocide, ethnic cleansing, natural disaster or disease, it would elicit immediate international action (Action on Smoking and Health, 1998). Unfortunately, such a collaborative response to the smoking problem has been slow to materialize. An internationally unified education program would help to educate all people uniformly. It was found that smokers were up to four times more likely to have evidence of significant intellectual decline than either non-smokers or former smokers (*BMJ Specialty Journals*, 2000). A European study that looked at differences in prevalence of smoking by educational level replicated these conclusions (Cavelaars,

Kunst, Geurts, Crialesi, Grötvedt, Helmert, Lahelma, Lundberg, Matheson, Mielck, Rasmussen, Regidor, Rosário-Giraldes, Spuhler, & Mackenbach, 2000). Results indicate that this lower education leads to smokers' being more likely to be unmarried, drink coffee, consume heavy amounts of alcohol, forego exercise, and to develop cancer than nonsmokers (Miller, Hemenway, & Rimm, 2000).

Commonly with adolescent audiences, health messages fall on deaf ears. "When you are 14, it is impossible to imagine a health risk" (Peck, 2000). More effective intervention techniques, for example, have involved telling girls that smoking inhibits estrogen production because at that age they don't want to risk using anything that is going to slow down their development. Telling them that smoking makes the skin age faster is also more likely to have a beneficial effect. Many girls are very aware of the aging effect of the sun, which makes this an effective message. For boys, Peck (2000) argues that the best approach is to get them involved in a peer group in which smoking is unacceptable. That usually means sports, where both the coach and other players will come down on smokers.

The moments lost should be considered while each cigarette is smoked. Researchers in Great Britain estimate that men lose an average of 11 minutes of life every time they light up (Shaw, Mitchell, & Dorling, 2000). The opportunities gained in stopping smoking are considerate. Smoking one cigarette less provides an extra 11 minutes in which to call a friend, read a newspaper, take a brisk walk, or engage in fairly frantic sexual intercourse. Smoking one less pack of 20 cigarettes yields an extra 3 hours 40 minutes of life, time enough to view a long film (for example, Titanic) or two football matches, take a Eurostar journey from London to Paris, including visit to a café, run in a

London marathon, or enjoy tantric sex. What might one do with the time netted by foregoing a carton of 200 cigarettes? One would gain 1.5 days to visit friends or family, attend a Wagner opera, fly around the world, or enjoy a romantic night away (Shaw, et al, 2000). Presenting information about the consequences of not smoking in this positive light may have beneficial effects on young people.

In the present study, differential substance use between American and Australian college students was assessed through administration of a detailed survey of recent use of six commonly used psychoactive substances (cigarettes, chewing tobacco, alcohol, marijuana, cocaine, and caffeine). Situational contexts associated with use of particular substances were also investigated, as were motivating factors prompting different types of substance use.

Methods

Participants

Respondents were 195 college students from a small liberal arts college located in a suburban area in the Northeast United States and 27 college students from an urban university in new South Wales, Australia. The mean age of American respondents was 19.6 years and of Australian respondents, 18.7 years.

Survey Instrument

A three-page survey, completed by students, consisted of items pertaining to smoking and substance abuse, general attitudes towards these habits, and demographic items assessing membership in Greek life and athletics. Questions taken from Wechsler et al. (1998) were used to determine cigarette and other drug use in the past 30 days and

in the past year. Students were asked to indicate their likelihood of using five specific substances (tobacco, caffeine, alcohol, marijuana, and cocaine) in eight different situational contexts. They were also asked to rate on a four-point Likert scale (1= not at all important, 2= somewhat important, 3= important, and 4= very important) the importance of different sources of motivation for using each of three substances (tobacco, alcohol, and marijuana). Also included were questions regarding mental health based on a survey by Fisher and Farina (1979). To measure self-esteem, Rosenberg's (1965) self-esteem scale was included.

Results

Directionally adjusted items were totaled to create a summary measure of total substance use for each participant. Between-group t-tests were conducted to assess differences associated with nationality.

No significant cultural differences were found on total substance use scores. However, Australians did report greater use of cocaine (Australians' $x= 1.37$, s.d.= .74, $n= 27$ versus Americans' $x= 1.10$, s.d.= .44, $n= 195$; $t= 7.163$, $df= 1$, $p < .008$).

Significant differences between Australians and Americans were found on six of eight items relating to situations associated with substance use. Americans reported more use of alcohol when bored on the weekends (Americans' $x= 2.61$, s.d.= 1.27, $n= 195$ versus Australians' $x= 1.81$, s.d.= 1.71, $n= 27$; $t= 8.342$, $df= 1$, $p < .004$). When compared with Australians, Americans reported greater use of caffeine when celebrating an achievement ($t= 4.29$, $df= 1$, $p < .04$). Americans indicated that they use caffeine and cocaine when facing a task requiring creativity more so than Australians (caffeine $t= 4.74$, $df= 1$, $p < .03$; cocaine

t= 6.28, df= 1, p <.013). Americans were also more likely than Australians to use marijuana when exhausted or angry at their parents, or to use other substances when anxious before giving a speech. No significant cultural differences emerged in terms of use of substances in situations where students were anxious before a social event, or depressed about a bad grade.

Significant cultural differences were found on all five of the items directly assessing conscious motivation underlying use of substances (to fit in with friends; reward for hard work; to feel comfortable with opposite sex; to get away from problems; because everyone else is doing it; see Table A). Australians were more prone to report using tobacco as a reward for hard work, to feel comfortable with the opposite sex, and because everyone else is doing it. As compared with Americans, Australians report greater use of alcohol to fit in with friends and because everyone else is doing it (Americans' x= 1.54, s.d.= .76, n= 195 versus Australians' x= 1.89, s.d.= .89, n= 27; t= 4.81, df= 1, p <.029). Marijuana was used more extensively by Australians to get away from their problems (Americans' x= 1.31, s.d.= .86, n= 195 versus Australians' x= 1.78, s.d.= 1.22, n= 27; t=6.178, df= 1, p <.014).

Table A

	Americans n= 195		Australians n= 27				
	Mean	S.D.	Mean	S.D	t	df	p
Fit in with friends:							
Tobacco	1.07	.48	1.22	.64	2.10	1	.149
Alcohol	1.54	.76	1.89	.89	4.81	1	.029
Marijuana	1.15	.58	1.26	.81	.702	1	403
Reward for hard work:							
Tobacco	1.20	.74	1.59	1.08	5.84	1	.016
Alcohol	1.99	1.11	2.37	1.31	2.62	1	.107
Marijuana	1.25	.78	1.44	.89	1.40	1	239
Comfort with opposite sex:							
Tobacco	1.09	.53	1.41	1.05	6.37	1	.012
Alcohol	1.73	.98	2.07	1.33	2.59	1	.109
Marijuana	1.07	.48	1.26	.86	3.06	1	.082
Get away from problems:							
Tobacco	1.24	.80	1.41	.93	1.05	1	.306
Alcohol	1.84	1.05	2.07	1.21	1.13	1	.290
Marijuana	1.31	.86	1.78	1.22	6.18	1	.014
Everyone else does it:							
Tobacco	1.06	.49	1.44	.97	10.64	1	.001
Alcohol	1.46	.79	1.96	1.06	8.97	1	003
Marijuana	1.13	.63	1.30	.82	1.58	1	.210

Discussion

Overall, relatively few significant differences emerged between Americans and Australians on the substance use measures. Total use did not vary as a function of culture, at least in this sample of undergraduates. Frequency of use of specific substances also did not generally differ by culture, although Australians reported more use of cocaine. This might reflect greater willingness to report such use, easier access to cocaine, or actual higher preference for the effects of this drug in Australia.

When compared to Australians, Americans may actually make more instrumental use of psychoactive substances as a function of situational context, while Australians seem to make greater use of substances due to specific motivational states. For example, Americans in this sample reported greater use of alcohol when bored on the weekends. It may be more socially acceptable for Americans to imbibe as a result of boredom on the weekends. In contrast, Australians may spend more time participating in weekend activities or doing schoolwork in lieu of drinking. Alternatively, it is possible that members of the American group find less to do with themselves because of the surrounding environment of the particular college sampled (while the U.S. sample was taken from a suburban region, the Australian group was drawn from an urban region). Future research using an expanded sample of American and Australian undergraduates would be useful.

Several differences emerged on the measures of conscious motivations for substance use. Australians acknowledged using alcohol more extensively than Americans to fit in with others and because everyone else was doing it. This may be due to cultural differences in the social desirability of these items. Alcohol use may be more accepted in Australia, and

in order to fit in or be accepted into a clique, many students may feel they must drink. There may be less pressure on American students to drink to *belong socially*, or they may be reluctant to admit to drinking for this reason.

Level of insight regarding the harmful effects of psychoactive substances have on both health and social standing may have caused the two populations to report different usage of substances. For example, the American population reported less use of cocaine, possibly because of their greater insight into the negative consequences of this drug.

The two college samples were obtained on different types of campuses and under different conditions. This confounding makes it difficult to attribute the observed differences to the nationality variable with any certainty. The U.S. data was collected in a large classroom setting, whereas the Australian data was collected outside of the library. Because of the presence of a faculty member in the classroom, the American subjects may have felt less comfortable disclosing information about their substance use, while the Australian sample was in a more relaxed atmosphere and with out fear of faculty intercepting their responses. Also, the experimenter was native to the U.S. college, possibly affecting the ease with which students discussed substance use. The Australian population may have had fewer reservations about disclosing information to a student from a different college in a different country.

It is therefore possible that artifacts associated with the way data was collected in this study may have obscured actual group differences. Replication of these findings using larger, more parallel, and more representative samples would enable a better assessment of the generalizability of these findings.

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